

MONO POWER AMPLIFIER

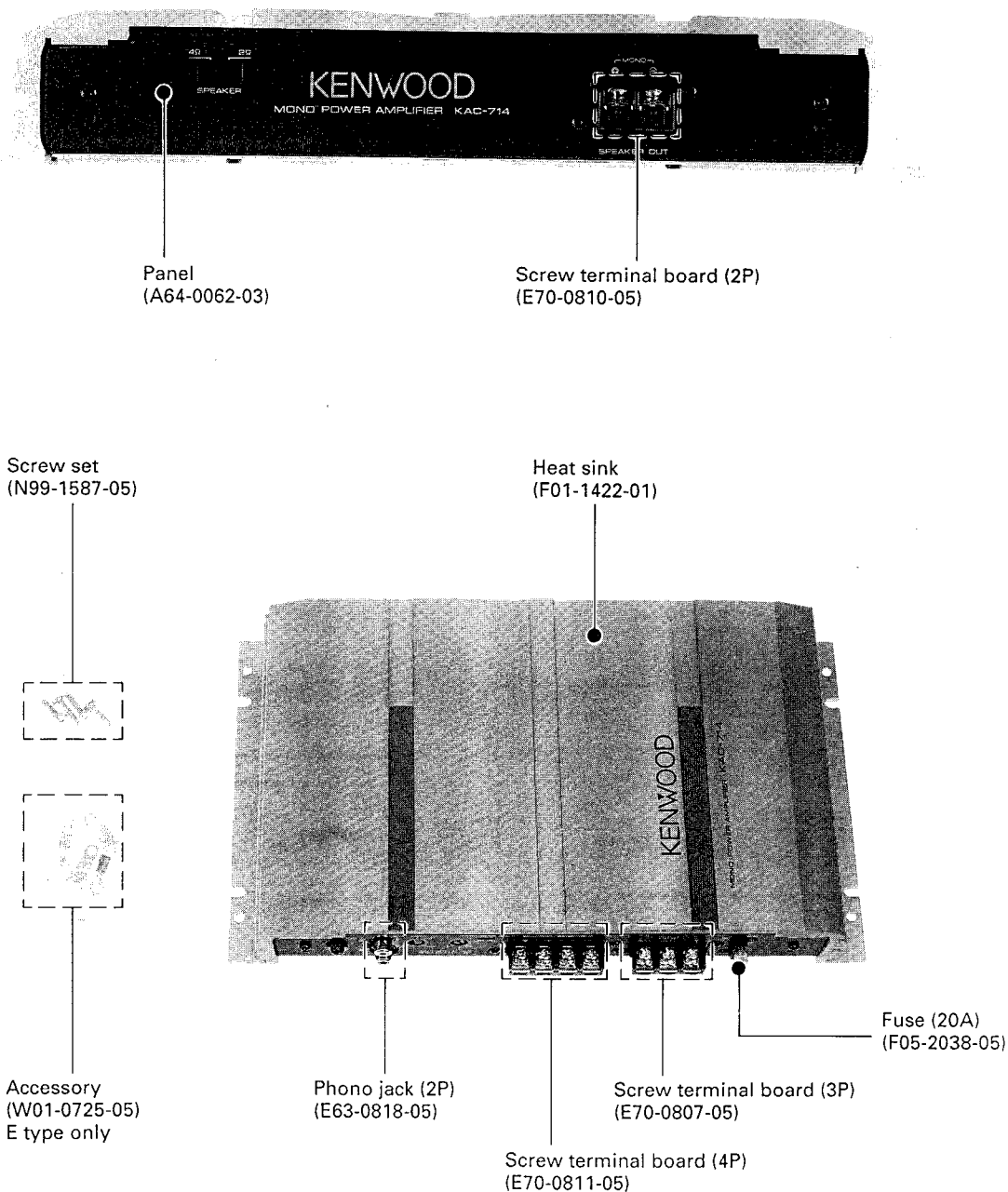
KAC-714

SERVICE MANUAL

KENWOOD

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B51-6574-00(O)3866

This unit is a monaural amplifier for bass sound reproduction only. It cannot be used as an ordinary stereo full-range amplifier.



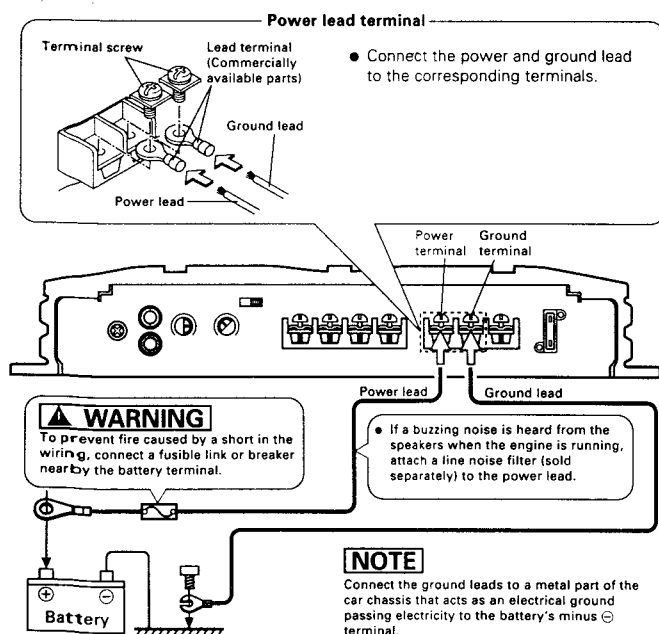
CONTENTS / CONNECTIONS

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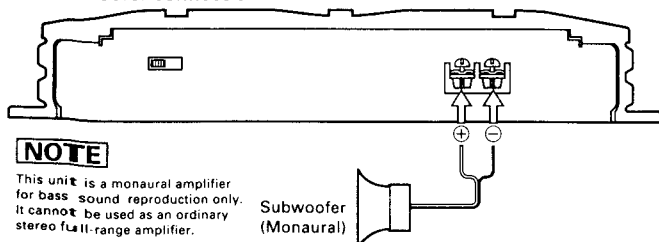
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Connections

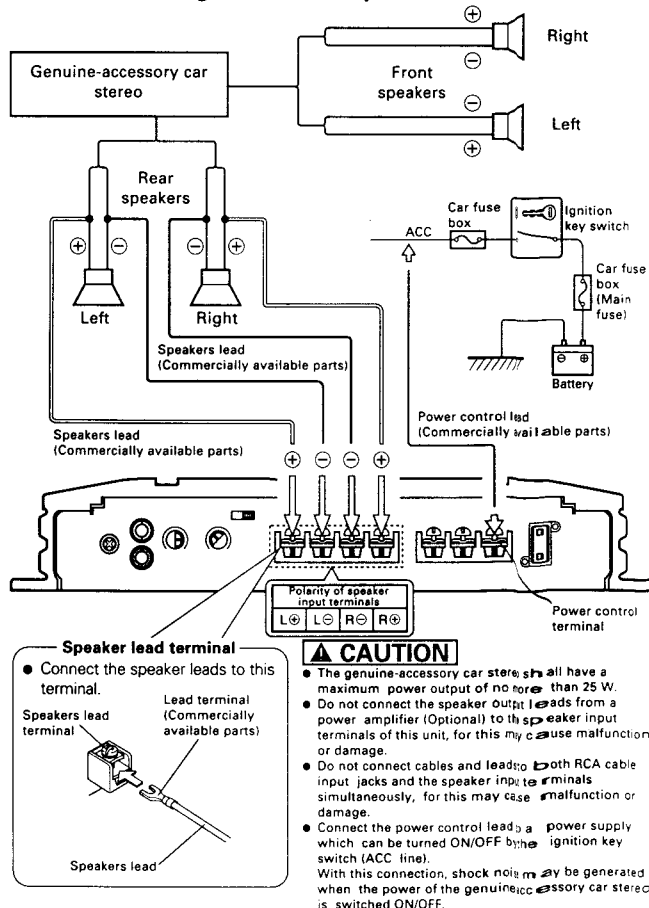
■ Power connection



■ Sub woofer connection

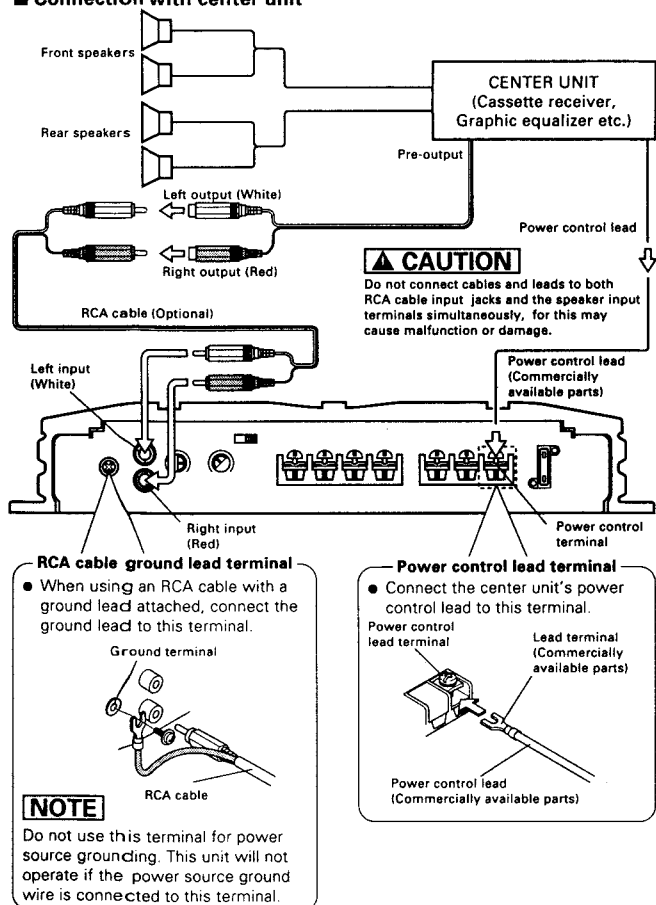


■ Connection with genuine-accessory car stereo



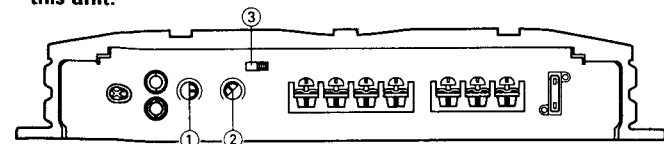
CONNECTIONS / CONTROLS

■ Connection with center unit



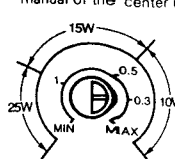
Controls

■ Operations of the following control and switches are required in accordance with the center unit and speakers connected with this unit.



① Input sensitivity control

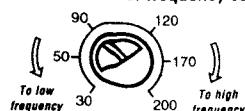
Set this control according to the pre-output level of the center unit connected with this unit, or to the maximum power output of the genuine-accessory car stereo. For the pre-output level or the maximum power output, refer to the "SPECIFICATIONS" in the instruction manual of the center unit.



Refer to the table below when setting the input sensitivity control according to the pre-output level of the center unit. Refer to the illustration on the left when setting the input sensitivity control according to the maximum power output of the genuine-accessory car stereo.

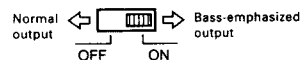
Center unit pre-out level	Amplifier input sensitivity
800-1000 mV	0.3 V

② Low pass filter frequency control (18 dB/oct.)

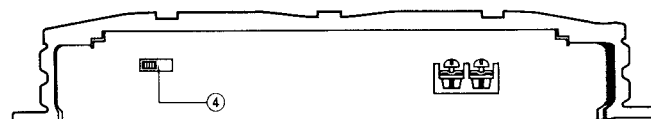


This control adjusts the frequency band output from this unit.

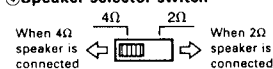
③ Bass emphasis switch



This switch allows to emphasize the output from this unit.

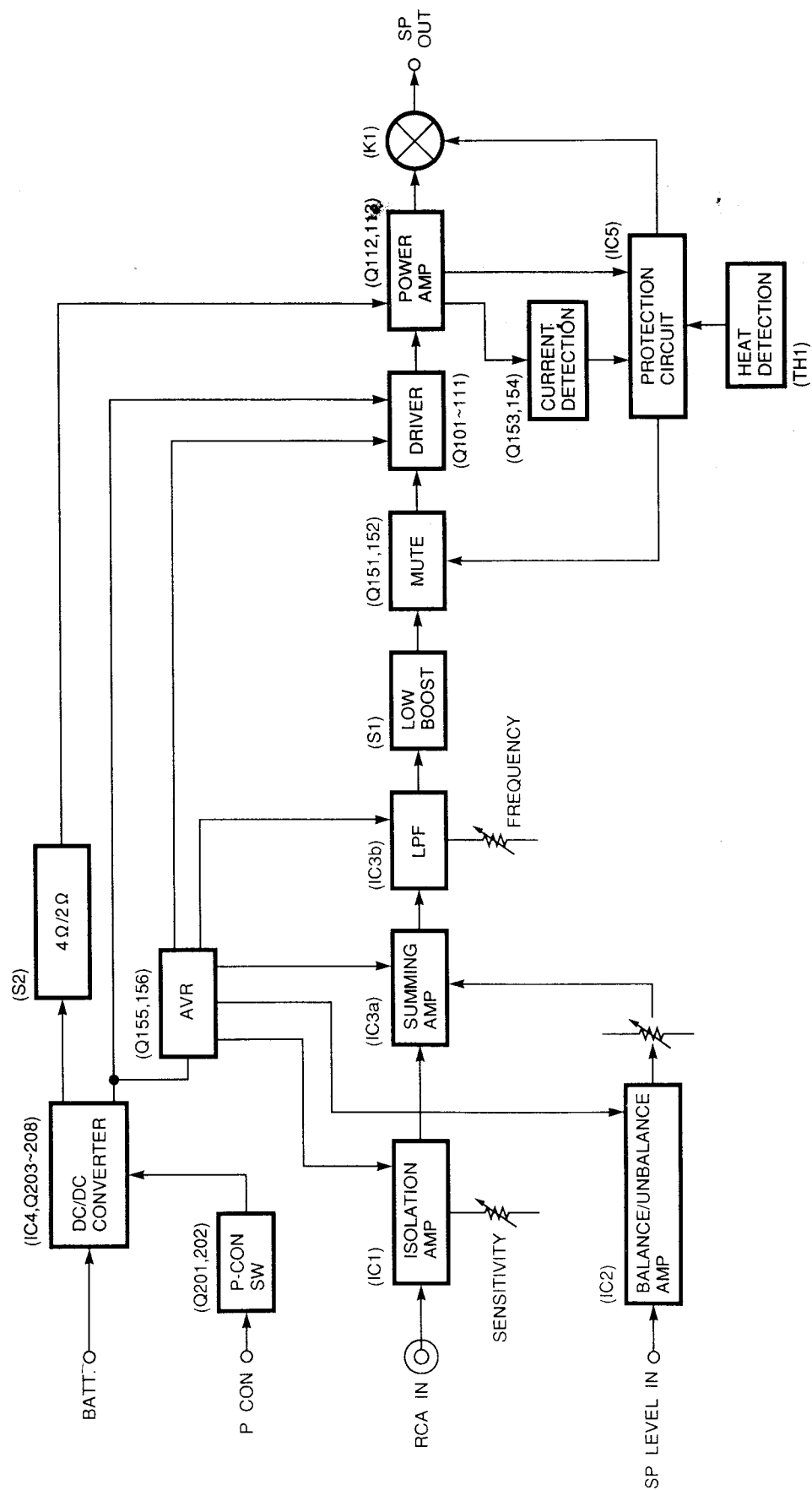


④ Speaker selector switch



Set this switch according to the impedance of the speaker connected to the speaker output terminals of this unit. In case two 4Ω speakers are connected in parallel, set this switch to the 2Ω position.

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

Description of Components

AUDIO UNIT (X09-5020-10)

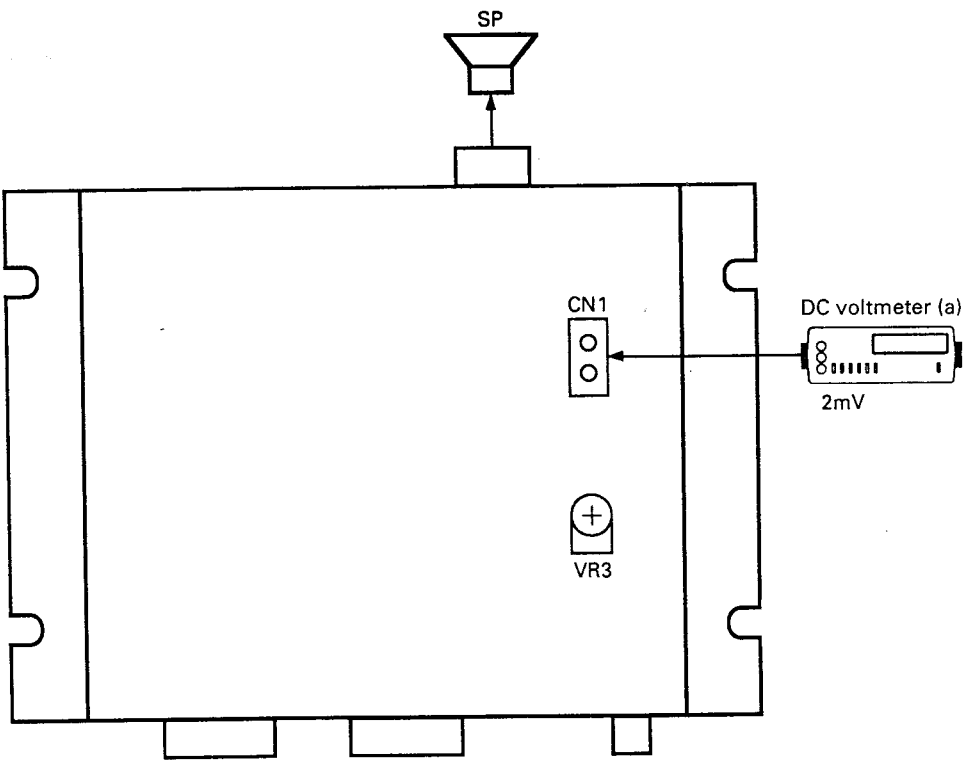
Ref. No.	Device	Use and Function	Operation and Condition
IC1	NJM4565D	Isolation amplifier	Eliminates car noise from the RCA input, and adjust its gain.
IC2	NJM4565D	Speaker level input amplifier	Balanced-unbalanced amplifier for the speaker level input.
IC3a	NJM4565D	Summing amplifier	Mixing of the RCA input and speaker level input.
IC3b	NJM4565D	LPF	Filter passing the lower frequencies than a threshold between 30 and 200Hz (variable).
IC4	μPC494C	Oscillator for DC/DC converter	
IC5	μPC1237HA	Protection	Overload DC offset. Activated by P-CON.
Q101, 102	2SC945(A) (Q,P)	Input differential amplifier	
Q103, 104	2SA992(F,E)	2nd stage differential amplifier	
Q105, 106	2SC1845(F,E)	3rd stage differential amplifier	
Q107	2SC1845(F,E)	Cascode stage	
Q108	2SA992(F,E)	Current mirror	
Q109	2SC945(A) (Q,P)	Temperature compensation	
Q110	2SC2590(Q,R)	Power drive stage	
Q111	2SA1110(Q,R)	Power drive stage	
Q112	2SC4387LB*5	Power stage	
Q113	2SA1672LB*5	Power stage	
Q151	2SC945(A) (Q,P)	Input muting	When the amplifier is switched OFF, activated before the relay to protect the relay contact.
Q152	DTA124ES	Input muting driver	
Q153	2SC1845(F,E)	Current detection	Activates IC5 upon detection of overcurrent.
Q154	2SA992(F,E)	Current detection	Activates IC5 upon detection of overcurrent.
Q155	2SC3940A(R,S)	AVR	±16V regulated voltage.
Q156	2SA1534A(R,S)	AVR	±16V regulated voltage.
Q201	2SC945(A) (Q,P)	P-CON ON detection.	
Q202	2SA1534A(R,S)	Power switch	Supplies power to IC4.
Q203, 204	2SC945(A) (Q,P)	Switching drive	
Q205, 206	2SA733(A) (Q,P)	Switching drive	
Q207, 208	2SK1946	Switching power stage	

ADJUSTMENT

Adjustment

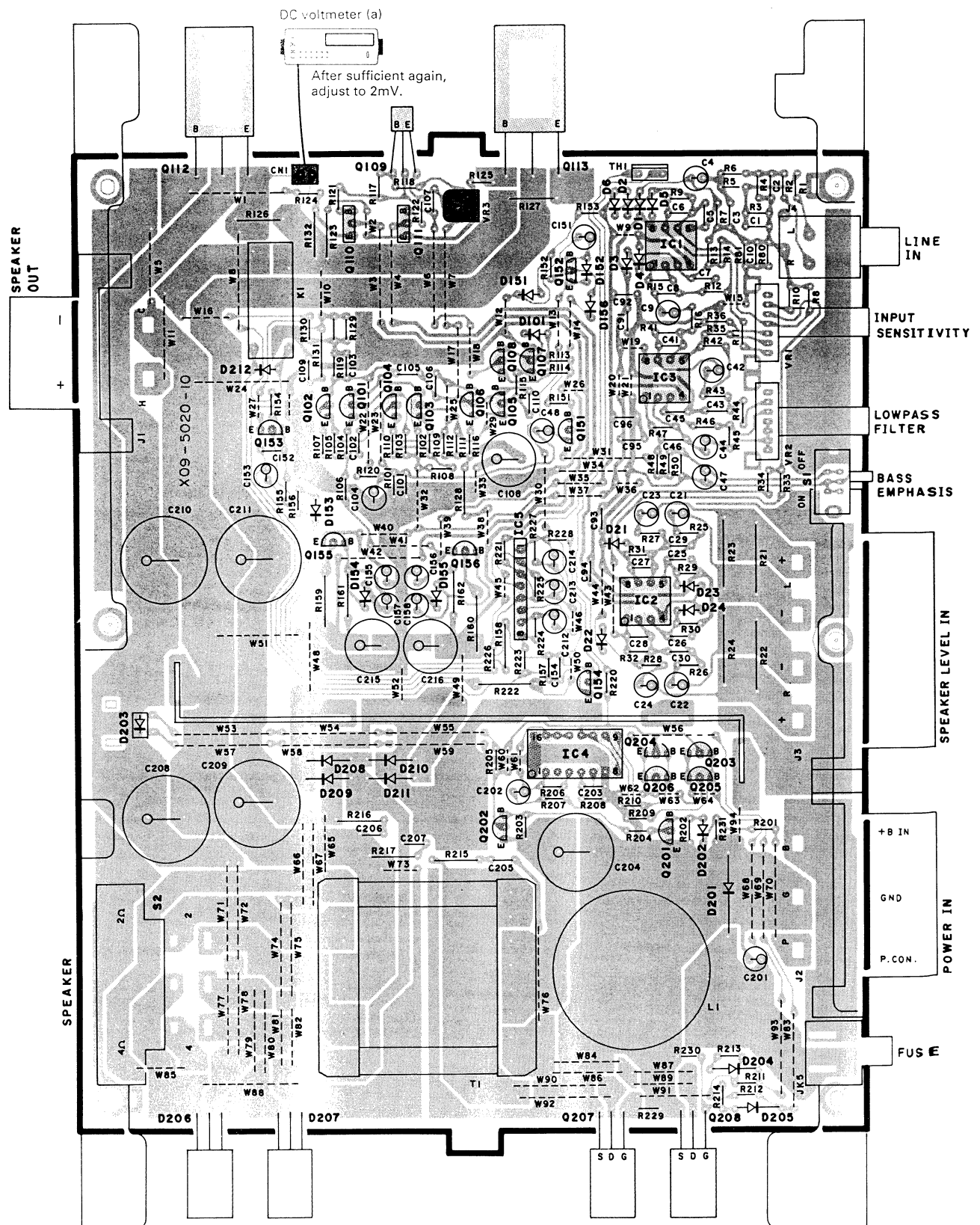
No.	Item	Input side setting	Output side setting	Receiver setting	Adjustment point	Adjustment method	Fig.
Connect a cassette deck.							
1	Non-signal current	-	Connect a DC voltmeter to CN1.	-	VR3	After sufficient aging, adjust to 2mV.	(a)

Adjustment Point



PC BOARD (COMPONENT SIDE VIEW)

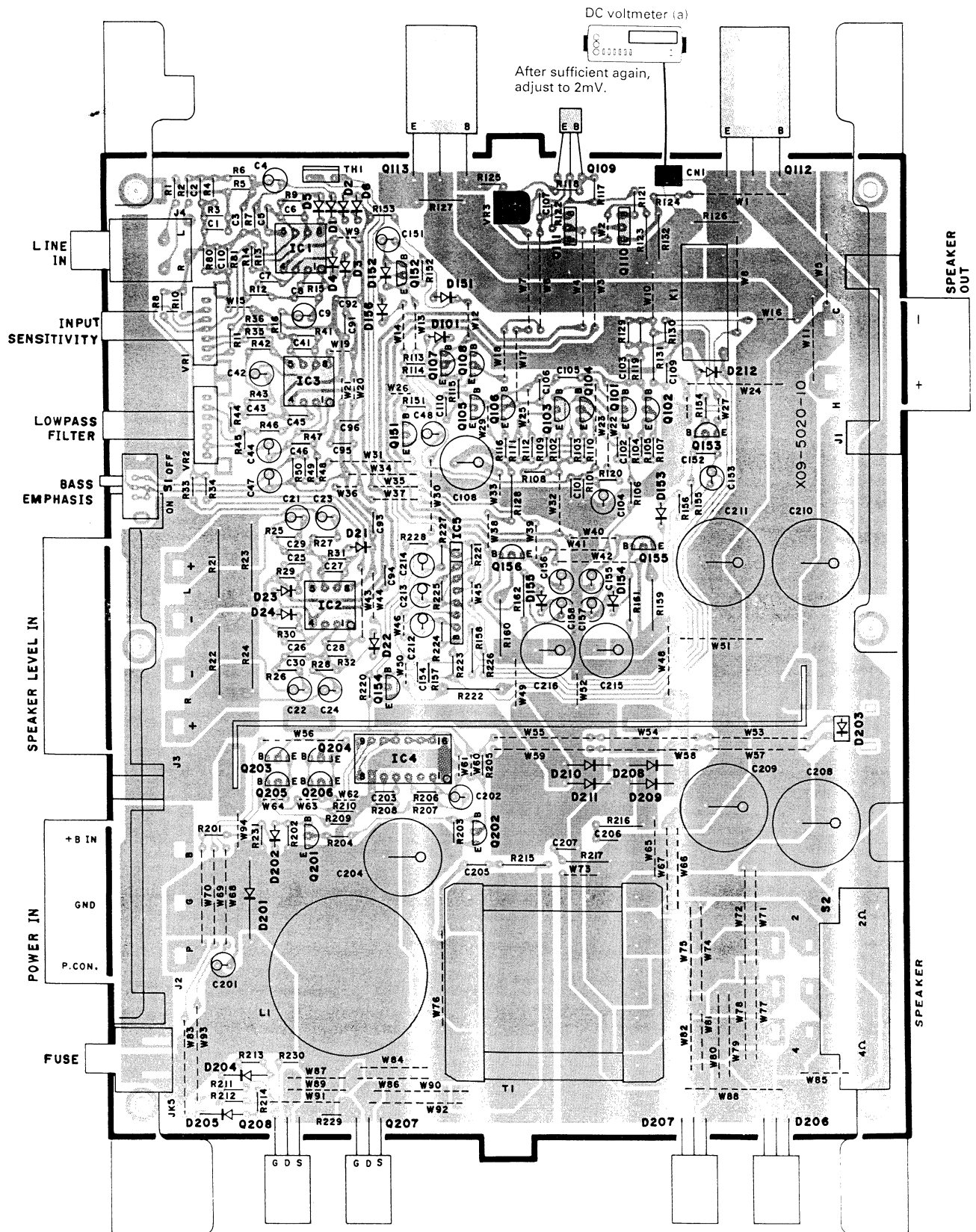
AUDIO UNIT (X09-5020-10)

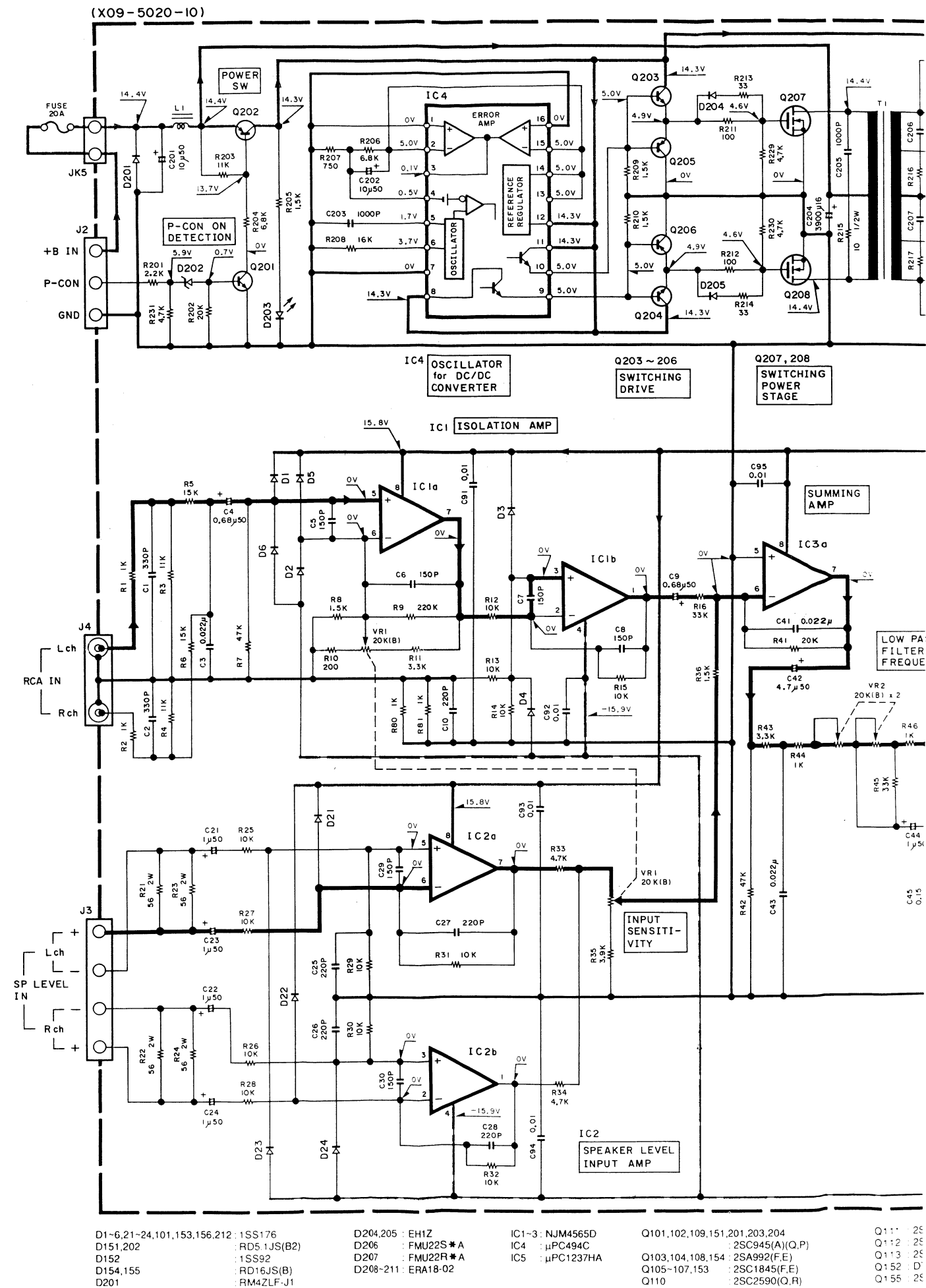


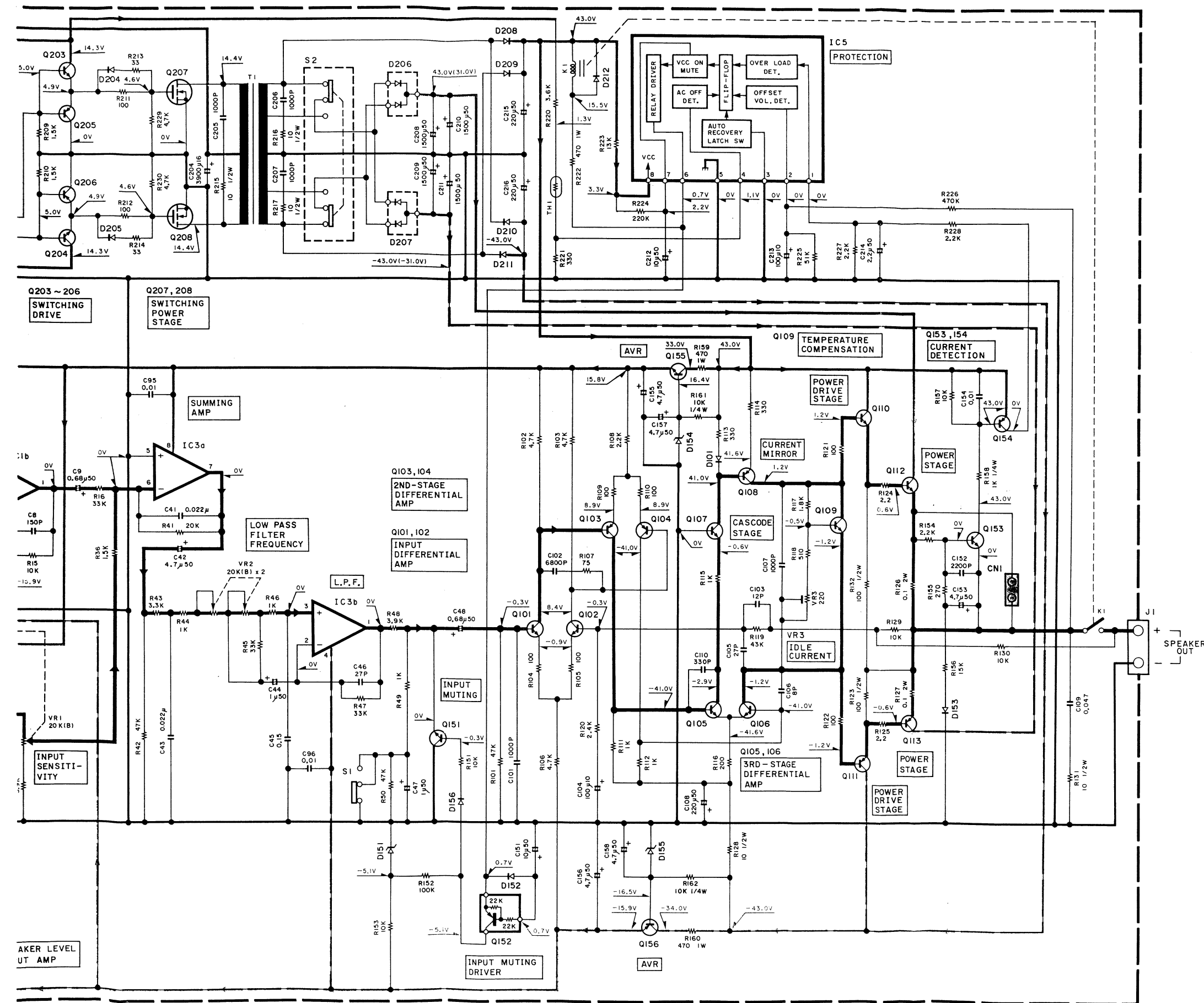
Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (FOIL SIDE VIEW)

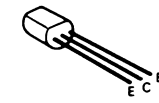
AUDIO UNIT (X09-5020-10)



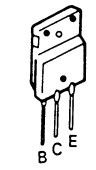




2SA1534A
2SA733(A)
2SA992
2SC1845
2SC3940A
2SC945(A)



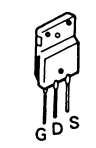
2SA1672LB*5
2SC4387LB*5



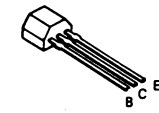
2SA1110
2SC2590



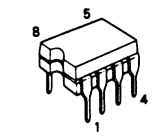
2SK1946



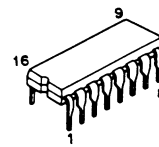
DTA124ES



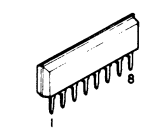
NJM4565D



μPC494C



μPC1237HA



• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

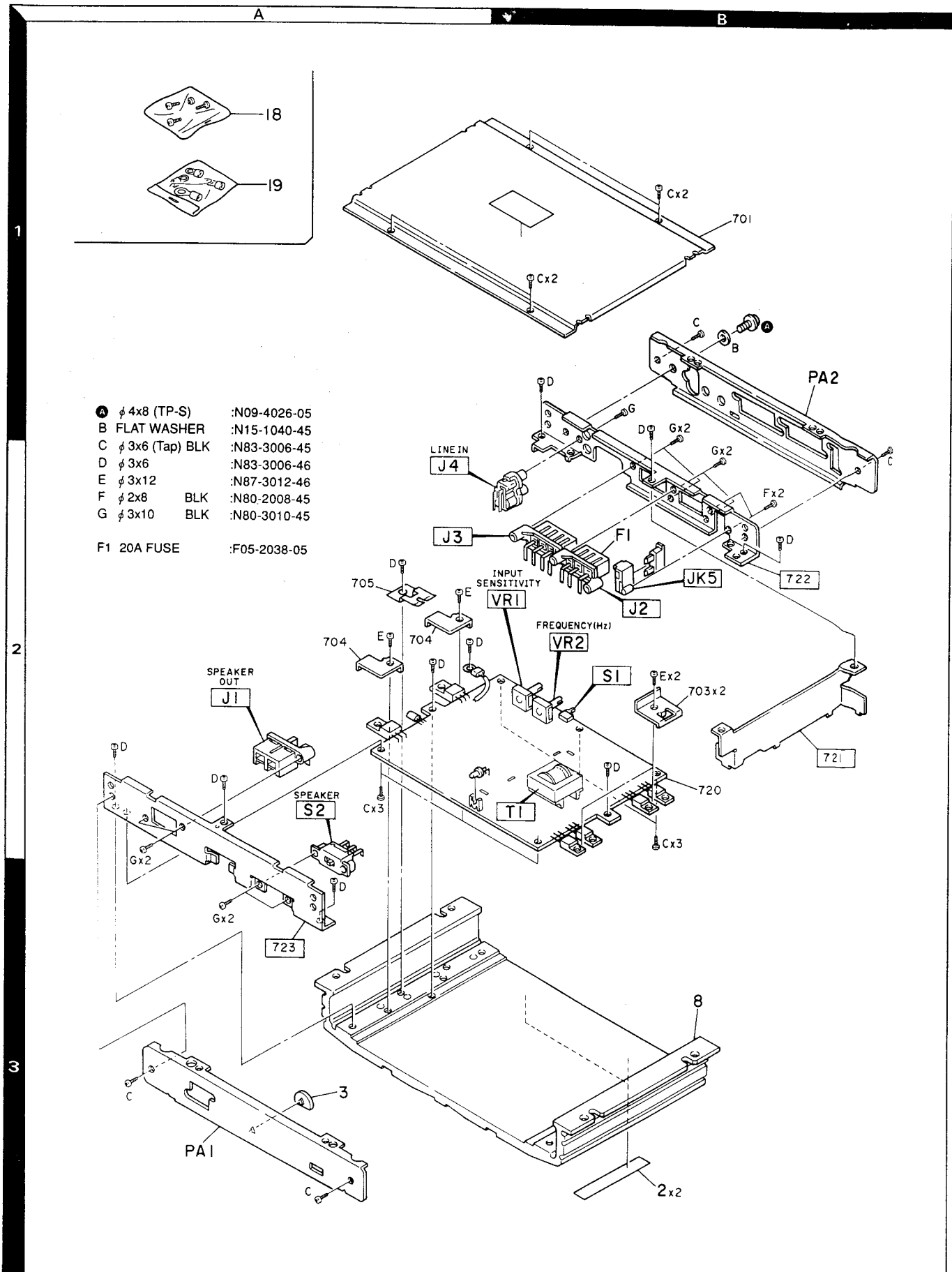
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚡ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Q101,102,109,151,201,203,204 : 2SC945(A)(Q,P)
Q103,104,108,154 : 2SA992(F,E)
Q105-107,153 : 2SC1845(F,E)
Q110 : 2SC2590(Q,R)
Q111 : 2SA1110(Q,R)
Q112 : 2SC4387LB*5
Q113 : 2SA1672LB*5
Q152 : DTA124ES
Q155 : 2SC3940A(R,S)
Q156,202 : 2SA1534A(R,S)
Q205,206 : 2SA733(A)(Q,P)
Q207,208 : 2SK1946
TH1 : PTH9M04BE222T
L1 : L33-0991-05

SIGNAL LINE
GND LINE
+B LINE
-B LINE

KAC-714

EXPLODED VIEW



PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
KAC-714						
PA1	3A	*	A64-0062-03	PANEL		
PA2	1B	*	A84-0015-03	REAR PANEL		
2	3B		B03-3007-04	DRESSING PLATE		
3	3A		319-0850-04	LIGHTING BOARD		
-			B46-0100-20	WARRANTY CARD		
-		*	B64-0298-00	INST. MANUAL(ENG.,FRA.)	K	
-		*	B64-0299-00	INST. MANUAL(ENG.,FRA.)	E	
-		*	B64-0300-00	INST. MANUAL(GER.,NETH.)	E	
-		*	B64-0301-00	INST. MANUAL(ITA.,SPA.)	E	
8	3B	*	F01-1422-01	HEAT SINK		
F1	2B		F05-2038-05	FUSE (20A)		
-		*	H10-4444-03	POLYSTYRENE FOAMED FIXTURE		
-			H25-0321-04	PROTECTION BAG (600X315X0.03)		
-			H25-0336-04	PROTECTION BAG (170X250X0.03)		
-		*	H54-0081-04	ITEM CARTON CASE		
-		*	H64-0087-04	OUTER CARTON CASE		
18	1A		N99-1587-05	SCREW SET		
A	1B		N09-4026-05	TAPPING SCREW (4X8,TP,S)		
B	1B		N15-1040-45	FLAT WASHER (4)		
C	1B, 3A		N83-3006-45	PAN HEAD TAPTITE SCREW		
D	2B		N83-3006-46	PAN HEAD TAPTITE SCREW		
E	2A, 2B		N87-3012-46	BRAZIER HEAD TAPTITE SCREW		
19	1A	*	W01-0725-05	ACCESSORY (CRITICAL P.)	E	
AUDIO UNIT (X09-5020-10)						
D203			B30-1342-05	LED		
C1 ,2			CC45FSL1H331J	CERAMIC 330PF J		
C3			CF92FV1H223J	MF 0.022UF J		
C4			CE04CW1HR68M	ELECTRO R68UF 50WV		
C5 -8			CC45FSL1H151J	CERAMIC 150PF J		
C9			CE04CW1HR68M	ELECTRO R68UF 50WV		
C10			CC45FSL1H221J	CERAMIC 220PF J		
C21 -24			CE04DW1H010M	ELECTRO 1.0UF 50WV		
C25 -28			CC45FSL1H221J	CERAMIC 220PF J		
C29 ,30			CC45FSL1H151J	CERAMIC 150PF J		
C41			CF92FV1H223J	MF 0.022UF J		
C42			CE04DW1H4R7M	ELECTRO 4.7UF 50WV		
C43			CF92FV1H223J	MF 0.022UF J		
C44			CE04DW1H010M	ELECTRO 1.0UF 50WV		
C45			CF92FV1H154J	MF 0.15UF J		
C46			CC45FSL1H270J	CERAMIC 27PF J		
C47			CE04DW1H010M	ELECTRO 1.0UF 50WV		
C48			CE04CW1HR68M	ELECTRO R68UF 50WV		
C91 -96			CK45FF1H103Z	CERAMIC 0.010UF Z		
C101			CF92FV1H102J	MF 1000PF J		
C102			CF92FV1H682J	MF 6800PF J		
C103			CC45FSL1H120J	CERAMIC 12PF J		
C104			CE04DW1A101M	ELECTRO 100UF 10WV		
C105			CC45FSL1H270J	CERAMIC 27PF J		
C106			CC45FSL1H080D	CERAMIC 8.0PF D		
C107			CF92FV1H102J	MF 1000PF J		

E : Europe

W : Without Europe

P : Canada

K : U.S.A and Canada

X : Australia

M : Without Europe, U.S.A and Canada

⚠ indicates safety critical components.

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
C108 C109 C110 C151 C152			CE04DW1H221M CF92FV1H473J CC45FSL1H331J CE04DW1H100M CK45FB1H222K	ELECTRO 220UF 50WV MF 0.047UF J CERAMIC 330PF J ELECTRO 10UF 50WV CERAMIC 2200PF K		
C153 C154 C155-158 C201, 202 C203			CE04DW1H4R7M CK45FF1H103Z CE04DW1H4R7M CE04DW1H100M CF92FV1H102J	ELECTRO 4.7UF 50WV CERAMIC 0.010UF Z ELECTRO 4.7UF 50WV ELECTRO 10UF 50WV MF 1000PF J		
C204 C205-207 C208-211 C212 C213		*	C90-2788-05 CF92FV1H102J C90-2787-05 CE04DW1H100M CE04DW1A101M	ELECTRO 3900UF 16WV MF 1000PF J ELECTRO 1500UF 50WV ELECTRO 10UF 50WV ELECTRO 100UF 10WV		
C214 C215, 216			CE04DW1H2R2M CE04DW1H221M	ELECTRO 2.2UF 50WV ELECTRO 220UF 50WV		
CN1 J1 J2 J3 J4	2A 2B 2B 2B	* * * *	E40-3640-05 E70-0810-05 E70-0807-05 E70-0811-05 E63-0818-05	PIN ASSY SCREW TERMINAL BOARD(2P) SCREW TERMINAL BOARD(3P) SCREW TERMINAL BOARD(4P) PHONE JACK		
W1 W3 ,4 W6 -8 W11 W22 -24			E31-5000-05 E31-5000-05 E31-5000-05 E31-5000-05 E31-5000-05	JUMPER WIRE JUMPER WIRE JUMPER WIRE JUMPER WIRE JUMPER WIRE		
W31 W42 W51 W53 -59 W66 -72			E31-5000-05 E31-5000-05 E31-5000-05 E31-5000-05 E31-5000-05	JUMPER WIRE JUMPER WIRE JUMPER WIRE JUMPER WIRE JUMPER WIRE		
W74 -80 W83 W88 W90 W92 ,93			E31-5000-05 E31-5000-05 E31-5000-05 E31-5000-05 E31-5000-05	JUMPER WIRE JUMPER WIRE JUMPER WIRE JUMPER WIRE JUMPER WIRE		
JK5	2B		J13-0602-05	FUSE HOLDER (CRITICAL P.)		
L1 T1	2B	*	L33-0991-05 L19-0533-05	CHOKE COIL TRANSFORMER FOR CONVERTER		
C D F G	2B 2B 2B 2A, 2B		N83-3006-45 N83-3006-46 N80-2008-45 N80-3010-45	PAN HEAD TAPTITE SCREW PAN HEAD TAPTITE SCREW PAN HEAD TAPTITE SCREW PAN HEAD TAPTITE SCREW		
R12 -15 R21 -24 R123 R126, 127 R128			RN14BK2C1002F RS14KB3D560J RD14DB2H101J R92-0205-05 RD14DB2H100J	RN 10.0K F 1/6W FL-PROOF RS 56 J 2W SMALL-RD 100 J 1/2W METAL-PLATE 0.1 K 2W SMALL-RD 10 J 1/2W		
R131 R132 R159, 160 R215-217			RD14DB2H100J RD14DB2H101J RS14KB3A471J RD14DB2H100J	SMALL-RD 10 J 1/2W SMALL-RD 100 J 1/2W FL-PROOF RS 470 J 1W SMALL-RD 10 J 1/2W		

E : Europe

W : Without Europe

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R222 VR1 ,2 VR3	2B	*	RS14KB3A471J R10-0627-05 R12-0605-05	FL-PROOF RS 470 J 1W POTENTIOMETER(20KX2) TRIMMING POT.(220)		
K1 S1 S2	2B	*	S76-0019-05 S62-0802-05 S31-2136-05	MAGNETIC RELAY SLIDE SWITCH SLIDE SWITCH (POWER TYPE)		
D1 -6 D21 -24 D101 D151 D152		*	1SS176 1SS176 1SS176 RD5.1JS(B2) 1SS92	DIODE DIODE DIODE ZENER DIODE DIODE		
D153 D154,155 D156 D201 D202		*	1SS176 RD16JS(B) 1SS176 RM4ZLF-J1 RD5.1JS(B2)	DIODE ZENER DIODE DIODE DIODE ZENER DIODE		
D204,205 D206 D207 D208-211 D212		*	EH1Z FMU22S*A FMU22R*A ERA18-02 1SS176	DIODE DIODE DIODE DIODE DIODE		
IC1 -3 IC4 IC5 Q101,102 Q103,104		*	NJM4565D UPC494C UPC1237HA 2SC945(A)(Q,P) 2SA992(F,E)	IC(OP AMP X2) IC(SWITCHING REGULATOR) IC(POWER AMP) TRANSISTOR TRANSISTOR		
Q105-107 Q108 Q109 Q110 Q111		*	2SC1845(F,E) 2SA992(F,E) 2SC945(A)(Q,P) 2SC2590(Q,R) 2SA1110(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q112 Q113 Q151 Q152 Q153		*	2SC4387LB*5 2SA1672LB*5 2SC945(A)(Q,P) DTA124ES 2SC1845(F,E)	TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR		
Q154 Q155 Q156 Q201 Q202		*	2SA992(F,E) 2SC3940A(R,S) 2SA1534A(R,S) 2SC945(A)(Q,P) 2SA1534A(R,S)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q203,204 Q205,206 Q207,208 TH1		*	2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SK1946 PTH9M04BE222T	TRANSISTOR TRANSISTOR FET POSITIVE RESISTOR		

E : Europe

W : Without Europe

P : Canada

K : U.S.A and Canada

X : Australia

M : Without Europe, U.S.A and Canada

⚠ indicates safety critical components.

KAC-714

SPECIFICATIONS

Specifications subject to change without notice.

Audio Section

Max Power Output (4 Ω)	200 W \times 1
Rated Power Output (4 Ω)	100 W \times 1 (30 Hz ~ 200 kHz, 0.08 %)
Rated Power Output (2 Ω)	150 W \times 1 (1 kHz, 0.8 % THD)
Frequency Response (-3 dB)	30 ~ 200 Hz
Signal to Noise Ratio	100 dB
Sensitivity (MAX.)	0.15 V (rated output)
(MIN.)	3.0 V (rated output)
Input Impedance	10 k Ω
Damping Factor (100 Hz)	More than 100
Low pass filter frequency (18 dB/oct.)	30 Hz ~ 200 Hz (Variable)

General

Operating Voltage	14.4 V (11 ~ 16 V allowable)
Current Consumption (1 kHz, 10%)	16 A
Dimensions (W \times H \times D)	280 \times 50 \times 170 mm (11 \times 1-15/16 \times 6-11/16 in.)
Weight	2.4 kg (5.3 lb)

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